CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

November 6, 2003
468th Regular Board Meeting
Item No. 15

TENTATIVE WASTE DISCHARGE REQUIREMENTS
BROWNING-FERRIS INDUSTRIES OF CALIFORNIA, INC.
(SUNSHINE CANYON CITY LANDFILL)

Staff Report

Tentative Waste Discharge Requirements (WDRs) and Monitoring and Reporting Program (M&RP) prepared for the proposed Phase 1 of City Landfill Unit 2 expansion at the Sunshine Canyon City Landfill were initially heard by the Board at a special Board meeting on July 24, 2003. The hearing was continued to the September 11, 2003 Board meeting. At that meeting, the Board decided to postpone a ruling on the proposed landfill expansion for 60 days and directed staff to provide additional information on the proposed project, including additional health study reports concerning the community surrounding the landfill, the source and extent of 1,4-dioxane contamination that had been detected in groundwater at the site, and the seismic stability of the proposed landfill liner system.

This staff report provides a brief summary of staff's response to the questions raised by the Board at the September 11, 2003 Board meeting, as well as some other issues that are related to the proposed landfill expansion. The Reporter's Transcript of the September 11, 2003 Board meeting, related comments received at the Regional Board since September 11, 2003, a cleanup and abatement order that was issued to Browning and Ferris Industries (BFI) on October 17, 2003, updated change sheets to the tentative WDRs and M&RP, and copies of updated tentative WDRs and M&RP (as of October 23, 2003), are attached to this staff report.

1. Additional Health Impact Investigations

The Board directed staff to obtain information on respiratory diseases, asthmatic children, and birth defects in the community surrounding the landfill (refer to page 209 of the Reporter's Transcript). Following the September 11, 2003 Board meeting, staff worked with the Los Angeles County Department of Health Services (DHS), the California Office of Environmental Health Hazard Assessment (OEHAA), and the University of Southern California Cancer Surveillance Program (USC-CSP) in an effort to obtain such information. Memos have been received from DHS and USC-CSP. The DHS memo states that they are still gathering information and that their investigation will not be complete for approximately one month. Their limited initial findings indicate that the rates of low birth weights near the landfill were similar to the rate reported countywide. The memo from the USC-CSP did not show any excess occurrence of cancers in the areas surrounding Sunshine Canyon Landfill.

2. Detection of 1,4-Dioxane at the Site

The Board required information identifying the source of 1,4-dioxane that was recently detected at the site and the extent of the contamination plume of this pollutant (refer to page 214 of the Reporter's Transcript). Additionally, concerns were raised as to whether the composite liner system for the proposed landfill expansion is adequate to prevent 1,4-dioxane from entering into groundwater (refer to pages 154 to 156 of Reporter's Transcript). These issues are addressed in the following paragraphs:

Source of 1,4-Dioxane: 1,4-dioxane is a manmade organic compound that exists in many household substances, including shampoos (less than 50,000 to 300,000 ug/l), liquid soap (less than 2,000 to 65,000 ug/l), and hair lotions (47,000 to 108,000 ug/l). Food additives can have 1,4-dioxane in the levels of 10,000 ug/l. It is therefore expected to occur in the municipal solid wastes and landfill leachate. In fact, 1,4-dioxane has been detected in leachate samples from both the City Side Landfill (220 ug/l) and the County Extension Landfill (40 ug/l) at Sunshine Canyon.

Because the monitoring wells where the contaminant was detected are located downgradient of the unlined inactive City Side Landfill, it is most probable that 1,4-dioxane in groundwater at the site is from the wastes that were disposed at the City Side Landfill. It is highly unlikely that 1,4-dioxane could have come from the County Extension Landfill because none has been detected in any groundwater monitoring wells at the County Extension Landfill which is equipped with a composite liner and leachate collection and removal system.

Extent of 1,4-Dioxane Plume: Available groundwater monitoring data have confirmed the detection of 1,4-dioxane in three groundwater monitoring wells and the groundwater extraction trench at the City Side Landfill. All these monitoring points are located in the entrance area of the canyon that is downgradient to the City Side Landfill. 1,4-dioxane has not been detected in any upgradient monitoring wells or groundwater monitoring wells at the property boundary. The plume of 1,4-dioxane plume is therefore restricted to the entrance area of Sunshine Canyon.

The tentative WDRs include a Corrective Action Program (CAP) that requires BFI to continue the evaluation of 1,4-dioxane contamination at the site, including testing for 1,4-dioxane in all groundwater samples in future groundwater monitoring events and installing additional groundwater monitoring wells as necessary. The corrective action measures required in the CAP, including the installation of a cutoff wall and upgrading the existing groundwater extraction trench, are also capable of remediating the contamination of 1,4-dioxane at the site. Additional corrective measures will be required if future monitoring data indicate that such measures are necessary for the remediation of 1-4, dioxane contamination.

Effectiveness of Proposed Liner System Against the Release of 1,4-Dioxane: A concern was raised that 1,4-dioxane may pass through the clay layer and enter groundwater. Because the concentrations of 1,4-dioxane in landfill leachate is very low (as indicated above), a liner

system including a chemically resistant synthetic liner above the clay liner, that is capable of preventing the release of leachate will prevent the release of 1,4-dioxane from the landfill.

The proposed landfill expansion will be equipped with a composite liner system that is includes an 80-mil thick (one mil equals 0.001 inch) layer of high density polyethylene (HDPE) membrane underlain by four feet of low permeability clay. The HDPE sheets are resistant to organic and inorganic chemicals, including 1,4-dioxane. The landfill's bottom liner is designed with a slope of at least 3% and overlain by a leachate collection layer that is comprised of coarse gravel and geotextile fabric. Leachate is collected at leachate sumps and pumped out. Leachate sumps are located at the lowest points at the landfill and equipped with a double liner system. The depth of leachate within the sumps is kept to less than one foot. It is therefore very unlikely that any significant amount of leachate will penetrate the HDPE membrane and reach the clay layer beneath it. The clay layer and the low permeability bedrock at the site will provide additional security against any minor damage or imperfections of the HDPE sheets.

3. Seismic Stability of the Liner System

Comments were raised at the Board meeting that the 1994 Northridge Earthquake caused a displacement of 18 inches, while the proposed landfill design only allows up to a 12-inch displacement. The concern was that the proposed liner system could not withstand an earthquake at the magnitude that is anticipated in the area (refer to pages 188 and 215 of the Reporter's Transcript). This concern is not valid since it compares tectonic uplift with allowable displacement criterion in landfill design.

The 18-inch displacement (relative movement) caused by the 1994 Northridge Earthquake involved tectonic uplift, during which a large area of land was uplifted all at once. The Sunshine Canyon Landfill was part of the entire "uplift" so there was no relative displacement on the landfill property i.e. everything moved as a single mass. This type of earth movement will have little effect on a landfill unless the landfill is located on an active fault (at the boundaries of the uplift) and the displacement is along that fault-boundary. California Code of Regulations, title 27 (27 CCR), prohibits any new or expansion of Class III landfills to be located on an active fault. Extensive geological investigations in the past have not found any active fault(s) at Sunshine Canyon. A requirement of the proposed WDRs is that a geologic map be made of any new expansion area, and be reviewed by Regional Board staff in the field, to determine if any previously unknown active faults are present. If they are found, the entire design of the landfill would have to be re-evaluated.

The allowable displacement criterion used in landfill design is the displacement that can reasonably be accommodated by any containment system without compromising its ability to contain wastes. Ideally, there should be no displacement with a containment system (liner). However, since a design with zero displacement is not achievable, an allowable displacement is used. An 18-inch allowable displacement would be less stringent than a 12-inch allowable displacement. In fact, this Regional Board allows only a 6-inch displacement for new landfill designs, which is more stringent than the 12-inch displacement that is allowed by some other

Regional Boards in the State. The 6-inch maximum allowable displacement is applicable to the proposed City Side Landfill expansion

4. Issuance of Cleanup and Abatement Order for the City Side Landfill

The Executive Officer issued a Cleanup and Abatement Order (CAO, No. R4-2003-0132) on October 17, 2003, that requires a Corrective Action Program (CAP) at the City Side Landfill. The CAP includes corrective measures such as the construction of an impermeable subsurface barrier (cutoff wall) across the mouth of the Sunshine Canyon, installation and operation of extraction wells to remove groundwater from behind the cutoff wall, upgrading and continuing operation of the existing groundwater extraction trench, ongoing upgrades and operation of landfill gas collection system, and modification of the groundwater monitoring system. It also includes requirements for the delineation and evaluation of 1,4-dioxane contamination that was recently detected in several groundwater monitoring wells at the site and the prompt final closure of the City Side Landfill.

The CAP, which is required by 27 CCR, was proposed by BFI in an Amended Report of Waste Discharge (AROWD) that was submitted to the Regional Board on August 11, 2003, and was included in the tentative WDRs that was considered by the Board at the September 11, 2003 Board meeting. Because of the uncertainty regarding the Board's action on the tentative WDRs for the proposed landfill expansion and the fact that the CAP should be implemented as early as possible, it was necessary to issue the CAO to require the CAP at the site. The CAP needs to be implemented as early as possible to reduce the chance of contaminants being released to offsite. The tentative WDRs that will be considered by the Board at the November 6, 2003 Board meeting will still include a CAP. The tentative WDRs, if adopted, will supersede those requirements in the CAO.

5. Federal (RCRA) Requirements for Wetlands

On September 22, 2003, Mr. Kelly Smith of the Smith Firm, who represents the North Valley Coalition (NVC), submitted a letter to the Regional Board, stating that BFI had not met the requirements in title 40, Code of Federal Regulations (40 CFR), section 258.12 implementing portions of the Federal Resource Conservation and Recovery Act (RCRA). Section 258.12(a) requires, among other things, the proponent of a new landfill or landfill expansion to demonstrate that "*Where applicable under section 404 of the Clean Water Act or applicable State wetlands laws, the presumption that practicable alternative to the proposed landfill is available which does not involve wetlands is clearly rebutted.*" Similarly, section 258.12(a)(4) requires that "to the extent required under section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands. . . ."

In response to Mr. Smith's letter, Ms. Sharon Rubalcava of Weston Benshoof Rochefort Rubalcava MacCuish LLP, who represents BFI, submitted a letter to the Regional Board on October 1, 2003 arguing that the "practicable alternative" analysis had been performed in BFI's application for a 404 permit to the US Army Corps of Engineers as well as in the Supplemental Environmental Impact Report that was prepared for the proposed landfill expansion.

Other provisions of 40 CFR section 258.12 require the project proponent to make certain demonstrations to the Regional Board. These requirements include demonstrating that construction and operation of the municipal solid waste landfill (MSWLF) unit will not cause:

(i) Cause or contribute to violations of any applicable State water quality standard,
(ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act,
(iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973, and
(iv) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

(40 CFR section 258.12(a)(2).) Further, the project proponent must demonstrate that the unit will not cause or contribute to significant degradation of wetlands. (40 CFR § 258.12(a)(3).) In making this showing, the owner or operator must demonstrate the integrity of the unit and its ability to protect ecological resources by addressing the following factors:

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit;
(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit;
(iii) The volume and chemical nature of the waste managed in the MSWLF unit;
(iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;
(v) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and
(vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(*Ibid.*) Finally, section 258.12(a)(5) requires that there be sufficient information available to make a "reasonable determination with respect to these demonstrations."

As part of its Joint Technical Document (JTD) submitted to the Regional Board and other regulatory agencies, BFI included a section 3.11 that addressed the demonstrations required by 40 CFR section 258.12. Regional Board staff relied upon these submittals in the context of drafting the original, tentative WDRs for the landfill expansion. At the time, staff believed a "reasonable determination" could be made with respect to BFI's demonstrations as required by 40 CFR section 258.12.

Staff has further evaluated the submitted materials in accordance with applicable Federal and State regulations. Staff continues to believe that BFI has made the required demonstrations necessary at this time. An appropriate finding to reflect this determination will be prepared. Further, because certain provisions of 40 CFR 258.12 (e.g., paragraphs (a)(1) and (a)(4)) apply "where applicable" or "to the extent required" under section 404 of the Clean Water Act), a finding will be crafted to reflect that final determinations will be made in the context of the section 404 proceeding. At this time, the Regional Board staff has sufficient information to make a "reasonable determination" on these points. However, an explicit reopener will be included in the revised WDRs to indicate that the WDRs will be reevaluated if the section 401 (water quality certification) and section 404 (dredge and fill permit) processes alter the determinations

pertaining to 40 CFR 258.12(a)(1) and (4). Staff is currently working on these necessary revisions to the tentative WDRs and M&RP and will provide the Board with a change sheet before the Board meeting.

Conclusions: Staff believe that the issues that were raised at the September 11, 2003 Board meeting have been addressed and recommend that the tentative WDRs and M&RP be adopted.